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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,895	10/22/2003	Franz Gramsamer	10901/54	6582

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EXAMINER

PRUCHNIC, STANLEY J

ART UNIT PAPER NUMBER

2859

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,895

Applicant(s)

GRAMSAMER ET AL.

Examiner

Stanley J. Pruchnic, Jr.

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6, 8 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-11, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) 5, 7 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/22/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election without traverse of **SPECIES (b)** (drawn to Figs. 3a, 3b) in the reply filed on 16 August 2004 is acknowledged.
3. Claims 6, 8 and 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 16 August 2004.
4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Information Disclosure Statement

5. The references listed in the information disclosure statement (IDS) or PTO-1449 submitted by Applicant on 22 October 2003 are acknowledged. The cited references have been considered as indicated by the examiner's initials next to each reference considered.

However the foreign patent(s) and/or document(s) cited by applicant are considered only to the extent they could be understood from the abstract and drawings and Applicant's explanation of relevance in the Specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 1, 2, 9-11, 14 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashi *et al.* (Japanese Patent No. JP8261792 A, hereinafter **TAKASHI**) in view of Bowers *et al.* (U. S. Patent No. US 6529135 B1, hereinafter **BOWERS**).

Regarding **Claim 1**: TAKASHI discloses or suggests a system for monitoring a temperature prevailing in a stator unit of an electric drive, as claimed by Applicant in Claim 1, comprising:

a position measurement device (rotary encoder 5) connected to the drive including a signal processor unit (position data/temperature data-synthesizing means 13);

an electrical transmitter unit (temperature sensor input terminal 6); and

a temperature sensor (3) integrated into windings of the stator unit and configured to deliver a temperature-dependent sensor signal (ts), the electrical transmitter unit (temperature sensor input terminal 6) configured to input the sensor signal into the signal processor unit (position data/temperature data-synthesizing means 13).

Further regarding **Claims 9 and 14**, TAKASHI discloses or suggests the system wherein the signal processor unit (13) includes an arrangement configured to determine the temperature in accordance with the sensor signals, and the processor (13) includes means for determining the temperature in accordance with the sensor signals as claimed by Applicant.

Further regarding **Claim 10**, TAKASHI discloses the signal processor unit includes a signal transmitter (communication circuit 14) configured to transmit at least temperature data to a subsequent electronic device (motor controller 15).

Further regarding **Claim 11**, TAKASHI discloses the signal wherein the signal transmitter 14 is configured for serial data transmission (serial signals; see last line of English Abstract) to the sequential electronic device 15.

Regarding **Claim 15**: TAKASHI discloses or suggests a system for monitoring a temperature prevailing in a stator unit of an electronic drive, comprising: position measuring means (rotary encoder 5) connected to the drive including signal processing means (position data/temperature data-synthesizing means 13); electrical transmitting means (temperature sensor input terminal 6 and communication circuit 14); and temperature sensing means (temperature sensor 3) integrated into windings of the

stator unit for delivering a temperature-dependent sensor signal (ts) , the electrical transmitting means (communication circuit 14) for inputting the sensor signal (spt) into the signal processing means (15) as claimed by Applicant.

TAKASHI, as described above, only explicitly discloses the temperature sensor (3) is "in a motor", but does not explicitly disclose the temperature sensor (3) integrated into windings of the stator unit, as claimed by Applicant in **Claims 1, 2 and 15**.

BOWERS discloses a system for monitoring a temperature prevailing in a stator unit of an electronic drive wherein the temperature sensor is a thermistor 10e, which is a temperature-dependent resistor as claimed by Applicant in **Claim 2**, integrated into the windings (4) of the stator unit (Col. 4, Lines 13-17) as claimed by Applicant in **Claims 1 and 15**. BOWERS teaches it is advantageous to integrate a temperature-dependent resistor (10e) into the windings (4) of the stator unit in order to monitor the stator winding temperature to determine the operational condition of the motor (see, e.g., Col. 3, Lines 36-51 and Col. 7, Lines 29-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a temperature-dependent resistor for the temperature sensor in the motor of TAKASHI and to integrate the temperature-dependent resistor into the windings of the stator unit of the motor in order to determine the operational condition of the motor as taught by BOWERS.

9. **Claims 3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **TAKASHI** in view of **BOWERS** and further in view of **AVIANDER** (U. S. Patent No. 4150358 A).

TAKASHI in view of **BOWERS**, to summarize, discloses all the limitations as claimed by Applicant in **Claims 3 and 4**, as described above in Paragraph 8 as applied to **Claims 1, 2, 9-11, 14 and 15**, further including the limitations wherein the temperature sensor (3) is configured to deliver a temperature-dependent sensor signal (ts), to the input terminal 6 of rotary encoder through an A/D converter 7 (analog-to-digital converter) to the signal processor unit (microcomputer 11).

Neither **TAKASHI** nor **BOWERS** disclose the system wherein the electrical transmitter unit includes at least two inductively coupled coils, a first one of the coils associated with the signal processor unit, a second one of the coils associated with the temperature sensor; and wherein the first one of the coils is arranged to be acted on by activation signals via the electrical transmitter unit to detect the temperature-dependent sensor signal as claimed by Applicant in **Claims 3 and 4**.

AVIANDER discloses a system for temperature measurement in rotating machines wherein a transmitter unit includes two inductively coupled coils, a first one (4) of the coils associated with the rotor, a second one (3) of the coils associated with the stator; and wherein one of the coils is arranged to be acted on by activation signals via the electrical transmitter unit (pulse generator 6) to detect the temperature-dependent sensor signal.

AVIANDER is evidence that ordinary workers in the field of temperature measurement in rotating machines would recognize the benefit of using two inductively coupled coils as taught by **AVIANDER** for the transmission of activation and detection

signals of **TAKASHI** in order to couple the signals across the gap between the stator and rotor without mechanical contact.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute two inductively coupled coils for the input terminal of **TAKASHI** in order to couple the activation and detection signals across the gap between the stator and rotor without mechanical contact as taught by AVIANDER.

Allowable Subject Matter

10. Claims 5, 7 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in a form PTO-892 and not mentioned above disclose related temperature measurement devices and methods.

O'Callaghan (U. S. Patent No. 3728565 A), in a device for sensing the direction and speed of a rotating shaft, uses inductively coupled coils (Fig. 1), and uses measuring shunts having constant resistance values (see full wave rectifier 40).

Lehle (U. S. Patent No. 5142280 A) discloses contact-free inductive coupling of electrical signals in rotating machinery for temperature measurement.

Conway (U. S. Patent No. 4140999 A) discloses a temperature measurement system using inductive coupling to an oscillator circuit.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanley J. Pruchnic, Jr., whose telephone number is **(571) 272-2248**. The examiner can normally be reached on weekdays (Monday through Friday) from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached at **(571) 272-2245**.

Art Unit: 2859

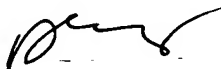
The **Official FAX** number for Technology Center 2800 is **(703) 872-9306** for **all official communications**.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the official USPTO website at **<http://www.uspto.gov/>** or you may call the **USPTO Call Center** at **800-786-9199** or 703-308-4357. The Technology Center 2800 Customer Service FAX phone number is (703) 872-9317.

The cited U.S. patents and patent application publications are available for download via the Office's PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site (www.uspto.gov/), from the Office of Public Records and from commercial sources.

Private PAIR provides external customers Internet-based access to patent application status and history information as well as the ability to view the scanned images of each customer's own application file folder(s).

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10/14/04